REMARKS

Applicants appreciate the Examiner's thorough examination of the subject application and request reconsideration of the subject application based on the foregoing amendments and the following remarks.

Claims 1-9 are pending in the subject application.

Claims 1-9 stand rejected under 35 U.S.C. §102, U.S.C. §112, first paragraph, and/or 35 U.S.C. §112, second paragraph. Claims 2, 4-5 and were objected to because of identified informalities.

Claims 1 and 7 were amended for clarity and to clarify that there can be one or more gear characteristic values for the gear driving system. Claims 1 and 7 also were amended to further describe the gear characteristic value.

Claims 2 and 8 were amended to reflect changes in the language of the respective base claim.

Claims 4-5 were amended to address the Examiner's objections and claim 6 was amended to be consistent with the language of amended claims 4-5. Claim 4 also was amended to further describe the gear characteristic value.

Claims 10-25 were added to more distinctly claim embodiments and aspects of the present invention.

The amendments to the claims are supported by the originally filed disclosure.

The specification including the abstract was objected to because of identified informalities.

The specification was amended so as to be consistent with the originally filed drawing figures. The Abstract was amended in the interests of advancing prosecution so as to avoid possible objections to the length of the Abstract. A replacement page for the Abstract is enclosed herewith to facilitate incorporation of the amendment into the subject application. The amendments to the specification do not introduce new matter because they either are editorial in nature or are supported by the originally filed disclosure.

35 U.S.C. §112, FIRST PARAGRAPH REJECTIONS

Claims 1-9 stand rejected under 35 U.S.C. §112 because the subject application fails to provide a written description of the claimed invention as more particularly provided on pages 6-11[1] of the above-referenced Office Action. As the Office Action does not include remarks for claims 2, 3, 5-6 and 8-9, it is understood that these claims stand rejected because they depend from a claim having an identified concern or that the concern for identified claim also would apply to one of these claims. Applicants respectfully traverse.

Because claims were amended in the instant amendment, the following discussion refers to the language of the amended claims. The following separately addresses the rejection as to the identified claims.

Claim 1

The Office Action asserts that the term "gear characteristic value" in claim 1 is unclear and that the specification does not specifically state what this characteristic value is and what the associated parameter is. Applicants respectfully traverse.

In pending claim 1, it is provided that the setting section sets a gear characteristic value for the gear driving system. Applicants generally refer the Examiner to Figs. 1 and 3 of the subject application and the discussion related thereto. Applicants would note that in the interests of advancing prosecution, claim 1 was amended to further describe the gear characteristic value, which amendment is consistent with the following discussion. As also indicated herein, claims 4 and 7 were similarly amended to further describe the gear characteristic value.

As shown in Fig. 1 and discussed in the subject application (see pages 19-20 thereof), the arithmetic unit 53 includes a characteristic setting section 54. It is further provided in the subject

[1] The Office Action includes two sections (10 and 11) under §112, first paragraph that detail the Examiner's concerns. Section 11 appears to be identical to section 10, and thus sections 10 and 11 have not been addressed separately herein.

application that the "functions of the characteristic setting section 54 are realized by a computer reading a program stored in a computer-readable recording medium." The subject application also provides that the "characteristic setting section (setting section) 54 sets characteristics of each gear in the gear driving system being designed."

In this regard, the subject application further provides the following as to the gear characteristics being set by the characteristic setting section (see pg. 20, l. 11- pg. 21, l. 6);

> Some of the gear characteristics set by the characteristic setting section 54 include: acceptable range of pitch distance between an input gear and a final gear; acceptable range of reduction ratio in the final gear; output torque of the final gear; the number of revolutions and the module of the input gear; and the number of reduction gears. These characteristics ("initially set characteristics" hereinafter) are set based on the input from the input unit 51. Other characteristics set by the characteristic setting section 54 include: the number of revolutions of the final gear; the number of teeth on each gear; tooth width; tooth strength; tooth material; tooth durability; and the diameter, length, and the supporting method of a gear supporting shaft. These characteristics ("design condition characteristics" hereinafter) are set based on the result of calculation by the calculating section 55. Note that, the input gear is the first gear that transmits the output of the driving source to the gear driving system. The final gear is the last gear in the gear driving system that outputs the transmitted driving force to the driving target.

The subject application (see generally pages 22-26 thereof), with reference to the flowchart in Fig. 3, also provides that the arithmetic operations in the arithmetic unit 53 can be divided into two major processes, where the "first process is steps S1 through S7 in Fig. 3 (designing steps for each gear), in which arithmetic operations are successively carried out to design each gear of the driving system." It also is provided that the "second process is steps S8 through S14 (calculation steps for optimum gear characteristics for preventing oscillation), in which arithmetic operations are carried out to obtain values of optimum gear characteristics for

preventing oscillation in the final gear and the driving gear." The subject application also provides that the arithmetic process in S1 through S7 provides "designing steps for calculating a gear sequence of the gear driving system, and gear characteristics of each gear in the gear driving system."

As to step S1, the subject application provides the following (pg. 22, l. 17 – pg. 23, l.1):

> In S1, the input unit 51 outputs, to the characteristic setting section 54, initially set characteristics for the gear driving system being designed by the gear-driving-system designing system. Here, the initially set characteristics include, for example, the number of revolutions and the module of the input gear, acceptable range of pitch distance between the input gear and the final gear, acceptable range of reduction ratio in the final gear, output torque of the final gear, and the number of reduction gears.

The discussion which follows on pages 23-24 of the subject application also further details other actions that could be performed for example to design the gear driving system.

It is thus clear from the discussion above regarding Fig, 3 that the first process results in the generation of the values or particular parameters associated with the gear characteristics of the gear driving system. It also is clear from the discussion regarding Fig. 3, that the gear characteristics and the associated value are those that are used in the described second process "to obtain values of optimum gear characteristics."

Thus, it also is clear that the specification does describe what is meant by the term gear characteristic. It should be recognized that the characteristics described in the subject application are exemplary and thus shall not be considered exhaustive. It is respectfully submitted that it is well within the skill of those knowledgeable in the art of gear driving systems to construct such a driving system using any of a number of components, gears or the like known in the art whether or not specifically described in the subject application. In addition, those skilled in the art also would be fully aware of an cognizant of those characteristics associated with any components or

functionalities used in such a gear driving system.

The grounds for the rejection also refers to discussions on page 5 of the subject application regarding the background art. Applicants respectfully submit that reference should be made to the discussions on pages 19-24 of the subject application as to the understanding of the terminology and claim language of the present invention as to the setting section language of claim 1.

The Office Action also makes reference to the discussion on paragraph 3 of the subject application. In this regard, Applicants make the following observations. The Examiner is correct that there can be one or more gear characteristics that define the gearing and functionalities of a gear driving system and as known to those skilled in the art these one or more gear characteristics can have a value associated with it. However; the Office Action appears to raise a question because how parameters are combined, selected and changed in the process.

As indicated above, and in the subject application, the first process embodied in steps S1-S7 of Fig. 3 embodies knowledge known and available to those skilled in the art. Thus, the process of setting gear characteristics initially, which appears to be part of the question set forth in the Office Action, is something that is well within the skill of those in the art.

As to the changing of the characteristics that were previously set, the subject application includes an exemplary discussion referring to Figs. 5(a)-(c) thereof. The specific illustrative example, used the axial diameter of the final gear as the parameter that was being changed and provided graphical views of different axial diameters to shown how the frequency spectra changed as a function of the diameter. In this way, it was shown that the spectral component of the frequency that causes oscillation became smaller when the axial diameter of the final gear was increased. In other words,, the amplitude of the oscillation caused in the gear driving system became smaller when the axial diameter of the final gear is increased. See pages 33-35 of the subject application.

While the axial diameter was the parameter which was used in the illustrative

embodiment to describe changing of a gear characteristic, the subject application provided the following as indication that the present invention was not limited to this parameter (see pg. 34, l. 16 – pg. 35, l 4).

> It should be noted that the parameter whose setting is changed to recalculate the frequency spectrum is not just limited to the axial diameter of the final gear described in the foregoing example. In order to recalculate the frequency spectrum, any gear characteristic may be selected as a parameter whose setting is changed, provided that the oscillation frequency or amplitude is reduced as a result of the change. In other words, by considering a change in frequency spectrum of the oscillation in the final gear in response to a change in gear characteristics, desirable characteristic values can also be obtained for the other gear characteristics as well, as for the axial diameter of the final gear selected as a parameter.

The discussion regarding Fig. 3 of the subject application (see page 32) also provides that:

> If the oscillation frequency and amplitude obtained in S12 are both greater than the desired oscillation frequency and amplitude in S13, a change is made in S14 to the characteristics that was set in S8 as initial input characteristics. Then, the sequence returns to S9 to repeat the process of S9 through S13. In S14, a change is made by resetting the currently set gear characteristics in the characteristic setting section 54, under the control of the characteristic changing section 57.
>
> The change in S14 may be carried out automatically by a program operating the gear-driving-system designing system, or may be carried out according to user instructions entered through the input unit 54.

From the foregoing it can be seen that it is contemplated that any one or more of the one or more gear characteristics that were initially set and/or previously reset can be changed to effect a change in the oscillation (frequency and/or amplitude) of the gear

driving system. Such a change can be established by configuring the program to effect such changes automatically or by allowing a user to input instructions through the input unit 54 which would be carried out by the program. Needless to say, such programming and instructions need not be completely detailed as it is well within those skilled in the art to establish criterion by which such changes can be effected and for the programming to provide such criterion.

In view of the foregoing, it is respectfully requested that the term "gear driving characteristic value" in claim 1 is supported by the originally filed disclosure.

Claims 4, 7

The Office Action asserts that the term "gear characteristic value" in either claim 4 or claim 7 is unclear and that the specification does not specifically state what this characteristic value is and what the associated parameter is. Applicants respectfully traverse.

Applicants refer to the discussion provided above for claim 1.

In view of the foregoing, it is respectfully requested that the term "gear driving characteristic value" in claims 4 and 7 is supported by the originally filed disclosure.

Accordingly, claims 1-9 satisfy the requirements of 35 U.S.C. §112, first paragraph and, therefore, these claims are allowable and the specification is considered acceptable.

35 U.S.C. §112, SECOND PARAGRAPH REJECTIONS

Claims 1-9 stand rejected under 35 U.S.C. §112 on the grounds that there are antecedent basis, indefiniteness and/or vagueness concerns with the identified claims. The Office Action further provides that claims without a specifically identified concern stand rejected because of their dependency one of claims 1, 4 or 7 (*i.e.*, a rejected claim with an identified concern).

It appears that while the each of claims 1, 4 and 7 stand rejected, the grounds for the

rejection of each claim is substantially the same, namely what is the value that is associated with the characteristic parameter. The following is offered as clarification.

Applicants would refer the Examiner to the discussion above regarding the 112, first paragraph rejections which clearly indicates that a parameter of a gear characteristic is a known or determined property of the gear or functionality that makes up the gear driving system and is property or value that is within the skill and knowledge of those skilled in the art.

Notwithstanding the foregoing remarks, Applicants amended claims 1, 4 and 7 for clarity and in the interests of advancing prosecution. Support for such amendments is found in the Summary of Invention portion of the subject application and pages 19-43 of the subject application. More specifically these claims were amended to provide that *one or more* gear characteristic values for the gear driving system are initially set, such as those set in the setting section of claim 1. These claims also were amended so as to provide that *any one or more of the one or more* gear characteristic values previously set (*e.g.*, set in the setting section) were changed when it was judged that the oscillation being simulated in the final gear does not fall within the acceptable range. As also indicated above, these claims were amended so as to further describe the gear characteristic value.

As provided in MPEP-2173.05(a), "[i]f the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is precise as the subject matter permits, the statute (35 U.S.C. 112, second paragraph) demands no more..." (citations omitted). Also, MPEP-2173.04 provides that breadth of a claim is not to be equated with indefiniteness (citations omitted). It is clear from the foregoing remarks that *one skilled in the art* would, upon reading the claims in light of the specification, understand and be apprised of the scope of the invention and its utilization.

Also, a *fundamental* principle contained in 35 U.S.C. § 112, second paragraph is that applicants are their own lexicographers. Further applicants can define in the claims what they regard as their invention essentially in whatever terms they choose so long as the terms are not

used in ways that are contrary to accepted meanings in the art. The terms in question clearly are not being used contrary to accepted meanings in the art.

It is respectfully submitted that claims 1-9 satisfy the requirements of 35 U.S.C. §112 and, therefore, are in a condition for allowance.

35 U.S.C. §102 REJECTIONS

The Examiner rejected claims 1-9 under 35 U.S.C. §102(e) as being anticipated by Koide [US Patent Publication No. 2002/0085086]. Applicants respectfully traverse as discussed below. Because claims were amended in the instant amendment, the following discussion refers to the language of the amended claims. However, only those amended features specifically relied upon to distinguish the claimed invention from the cited prior art shall be considered as being made to overcome the cited reference.

Applicant claims in claim 1 a system for designing a gear driving system, where such a system includes a setting section, a calculating section, a judging section and a setting changing section. The setting sections sets one or more gear characteristic values for the gear driving system and the calculating section simulates an oscillation in a final gear of the gear driving system, based on the one or more gear characteristic values set in the setting section. The gear characteristic value indicates characteristics of a final gear and a driving gear in a gear driving system and required for simulation of an oscillation in the final gear of the gear driving system.

The judging section judges whether or not the simulated oscillation in the final gear as determined by the calculating section is within an acceptable range. In the case where the judging section judges that the simulated oscillation in the final gear does not fall within the acceptable range, then the setting changing section changes any one or more of the one or more gear characteristic values previously set in the setting section.

Koide describes and teaches a device for driving an endless belt. Paragraph [0184] in Koide (see p.12 thereof); however, describes a case where a gear train serves as a transmission mechanism. Unlike the present invention after the above amendments, Koide never recites that simulation of an oscillation is carried out based on a gear characteristic value of a gear pair of a final gear and a driving gear of the final gear, and that the gear characteristic value is changed according to the result of the simulation. Simply, Koide does not describe/disclose that a gear driving system in which oscillation is suppressed can be designed by setting and changing the characteristic value of the gear pair of the final gear and the driving gear of the final gear. Thus, it is hardly possible for one based on the disclosures in Koide to conceive of the present invention.

Also, Koide does not anywhere disclose a system for designing a gear driving system. Koide describes and teaches techniques for handling an eccentric drive roller for an image forming apparatus having an endless belt. It first should be noted that Koide describes a different procedure and mechanism for reducing oscillations ascribable to the transmission mechanism. Koide specifically provides the following (see pg. 10, para. 0161).

> [0161] It has been customary to use a gear train, belt or similar speed reduction mechanism connected to a motor and *to mount a large flywheel on a drive roller or on the shaft* of a photoconductive drum, as taught in Laid-Open Publication No. 10-63059 discussed earlier. *This configuration reduces oscillation ascribable to the transmission mechanism* and increases motor efficiency. However, the transmission mechanism introduced in the driveline involves the deterioration of rigidity and eccentricity, making accurate control for constant rotation difficult. (italics added for emphasis)

In other words, Koide discloses and teaches mounting a large flywheel on the drive roller or shaft to reduces oscillation ascribable to the transmission mechanism. This clearly is different from the designing system methodology being described in the subject application.

The Office Action refers to the discussion in paragraphs 0060 to 0065 as disclosing a

setting section and a calculating section of the present invention. The Office Action also refers to paragraphs 0016, 0017, 0048 and 1084 and Fig. 29 as disclosing the claimed judging section and to paragraphs 0177 and 1084 as disclosing the claimed setting changing section.

As indicated above in the discussion regarding the §112, first paragraph rejections, the term gear characteristic value is a characteristic of the gear driving system. The discussion in paragraphs 0060 to 0065 in Koide is included in a section entitled relation between drum angular velocity and belt speed in a system where a belt roller is driving an belt. The specific discussion is directed to the derivation of an equation relating the angular speed of the drum and the velocity of the moving belt. None of the discussion relates to a system in which gear characteristics values of a gearing driving system are established. Also the equation that is derived is not an equation that simulates oscillatory movement of roller based on the gear driving characteristics but rather relates angular velocity of a roller having an eccentricity with the velocity of the moving belt.

Thus, the disclosure in Koide does not correspond to the claimed setting section or claimed calculating section. In any event that related further discussion in Koide is not directed to reducing an oscillatory movement to an acceptable level, but rather is directed to correcting for miss register of different colors and image distortion ascribable to the eccentricity, scattering in diameter and position of each drum (pg. 3, para 0059). For example, the discussion in paragraphs 0077-0084 describe a process where one adjusts the timing for generating an image in the main scanning direction.

In Koide, paragraph 0017 indicates that it is an objective of Koide "to reduce the oscillation of a mechanism for maintaining the angular velocity of a drive roller constant and the oscillation of a mechanism including a motor that drives the drive roller", paragraph 0048 describes Fig. 29 and paragraph 0184 describes what is shown in Fig. 29 in more detail.

Fig. 29 is in the discussion for the outer rotor type of coreless brushless rotor and it is noted in paragraph 00184 that the oscillation spatial frequency shown in this figure corresponds

to the spatial frequency of the torque ripples represented in Eq. 32 which is an expression of the fundamental spatial frequency of a three-phase motor described prior to paragraph 0178.

The discussion in that section is directed to actions taken with regards to the motor design to minimize the motor created torque ripples. There is some discussion in paragraph 00184 regarding the oscillatory amplitude and how the amplitude of the torque ripples is related to the gear ratio. While Koide makes some generalized statements abut the gear ratio and the torque ripples, it is clear that the discussion that follows in this section of Koide is directed to the design of the motor to minimize thrust ripples. Thus, there is no indication in the discussion of the section including Fig. 29 that there is a judging of a simulated oscillation of the final gear as determined by the calculating section based on the gear characteristics of the gear driving system.

As to paragraphs 0177 and 0184, neither paragraph is directed to changing a gear characteristics value that was initially set, when it is determined by the judging section that the simulated oscillation is not within an acceptable range. Paragraph 0177 is directed to the use of Hall elements to sense the strength and direction of a magnetic field and how, by bringing the torque ripple configuration of the motor closer to a trapezoidal wave, it is possible to implement an efficient motor with a minimum of torque ripples. As indicated above, this again relates to the operational characteristics of the electric motor not the gearing driving system to which the motor is connected.

In sum, Koide only provides some general design considerations for a gear driving system. It does not describe a system that is configured to design a gear driving systems so as to optimize the gear characteristics of the gear driving system by initially setting the gear characteristic value of the components of the gear driving system, simulating an oscillation of the final gear of a so configured gear driving system and determining if the oscillation in the final gear is within an acceptable range. Koike also does not describe that if it is not within an acceptable range, then the system causes one or more of the set gear characteristic values to be changed or reset.

Thereafter, the process embodied in the calculating section and the judging section can be repeated to see whether or not the changed values(s) yield a gear driving system, where the simulated oscillation in the final gear is within the acceptable range. If not the values would again be changed and the process repeated. If the oscillation is within the acceptable range, then the gear characteristic value(s) of the gear driving system are considered optimal and this outputted.

As provided in MPEP-2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Or stated another way, "The identical invention must be shown in as complete detail as is contained in the ... claims. *Richardson v Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ 2d. 1913, 1920 (Fed. Cir. 1989). Although identify of terminology is not required, the elements must be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). It is clear from the foregoing remarks that the above identified claims are not anticipated by Koide.

As the Federal Circuit has indicated , in deciding the issue of anticipation, the trier of fact must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify *corresponding elements* disclosed in the allegedly anticipating reference (emphasis added, citations in support omitted). *Lindemann Maschinenfabrik GMBM v. American Hoist and Derrick Company et al.*, 730 F. 2d 1452, 221 USPQ 481,485 (Fed. Cir. 1984). In concluding that the '770 Patent did not anticipate the claims, the Federal Circuit in *Lindemann Maschinenfabrik GMBM v. American Hoist and Derrick Company et al.*, at 221 USPQ 485-486, further provides that:

> The '770 patent discloses an entirely different device, composed of parts distinct from those of the claimed invention, and operating in a different way to process different materials differently. Thus, there is no possible question of anticipation by equivalents. Citations omitted.

It is clear from the foregoing remarks, that the allegedly corresponding elements disclosed in Koide do not in fact correspond to the elements of the claimed invention. It also is clear that the apparatus described in Koide functions and operates in a different manner from that of the claimed invention. As also indicated above, the method disclosed and taught in Koide for designing gear driving systems is completely different from that claimed and taught by Applicants. Thus, there can be no disclosure or teaching in Koide of Applicants' invention.

In view of the foregoing, it is respectfully submitted that claim 1 is distinguishable from Koide. As each of claims 2-3 depend from claim 1, it also is respectfully submitted that these claims are distinguishable because of the dependency from an allowed base claim. This shall not be construed as admission, however, that claims 2 and 3 are not separately patentable from Koide.

As to claims 4-6, these claims are directed to a computer program including code language/instructions that are directed to designing a gear driving system. There is no disclosure or teaching anywhere in Koide of a computer program.

Claims 7- 9 are directed to a method for designing a gear driving system. As indicated above, the method taught in Koide for dealing with transmission oscillation is to provide a large flywheel. The discussion in Koide involving Fig, 29, is directed to the actions taken to design the motor to minimize torque ripples created by operation of the motor. Thus, there is no disclosure of a method for designing a gear driving system by simulating an oscillation of the final gear based on a gear characteristic values(s) initially set for the gear driving system and judging from such a simulated oscillation if the oscillation is within an acceptable range. There also is no disclosure that if it is determined from such judging that the oscillation corresponding to the set gear characteristic values(s) of the gear driving system is not within the acceptable range, to change or rest one or more of these set gear characteristic values(s) of the gear driving system and repeating the simulating, judging and changing process until the oscillation corresponding to the gear characteristic values(s) being evaluated is within the acceptable range.

Such an iterative process also is not described anywhere in Koide.

It is respectfully submitted that for the foregoing reasons, claims 1-9 are patentable over the cited reference and thus, satisfy the requirements of 35 U.S.C. §102(c). As such, these claims are allowable.

CLAIM OBJECTIONS

In the above-referenced Office Action, claims 2, 4-5 and 8 were objected to because of identified informalities. Applicants respectfully traverse.

Claims 2 , 8

Applicants would note that the objections directed to claims 2 and 8 are directed to the same general concept, namely the criterion set forth in the claims as to what parameters are considered in determining that a detected oscillation is within an acceptable range. In this regard Applicants offer the following observations.

As described in the subject application (pg. 32, lines 4-8), "If the oscillation frequency and amplitude obtained in S12 are both greater than the desired oscillation frequency and amplitude in S13, a change is made in S14 to the characteristics that was set in S8 as initial input characteristics. Then, the sequence returns to S9 to repeat the process of S9 through S13." Moreover, it is provided (see pg. 32, lines 17-22) that "In this manner, as soon as the oscillation frequency and/or amplitude become smaller than desired values in S13, the gear characteristics set in the characteristic setting section 54 are outputted as optimum gear characteristics for preventing oscillation in the gear driving system."

As also provided (see pages 33-34, in particular paragraph starting at bottom of page 33), if the oscillation *and* amplitude both exceed desired values, any of the gear characteristics set as a parameter in the characteristic setting section 54 is changed, and the new gear characteristic is used to calculate a frequency spectrum again.

The discussion on page 34 of the subject application continues with a illustrative description as to how by changing the axial diameter of the final gear (*i.e.*, increasing the diameter), the spectrum component (*i.e.*, the amplitude) of the frequency causing the oscillation can be made smaller. The first full paragraph on page 34 (full paragraph quoted hereinabove), concludes with the following sentence:

> It follows from this that the axial diameter of the final gear should preferably be large, because it enables a gear driving system to be designed in which oscillation is suppressed, without using a helical gear or a gear with a small module for the final gear.

In other words, when the amplitude for the frequency creating the oscillation is suppressed by the changed a gear characteristic, the resultant gear characteristic yields a gear driving system that is acceptable. Thus, it is clear that the subject application is not limited only to the condition that both the amplitude and frequency of the oscillation must be within the acceptable range; and thus also includes the conditions where either the frequency or the amplitude exceed the desired values. It also logically follows from the language referred to in the carryover paragraph of pages 33-34, that what is logically not included by the relationship set forth in the first sentence of that paragraph is oscillation frequency *and/or* amplitude.

In sum the subject application discloses and teaches that, when each of the oscillation frequency and the amplitude is not in the acceptable range, the setting of the gear characteristic value is changed and the process of changing the setting is repeated until at least one of the oscillation frequency and the amplitude falls within the acceptable range. Thus, the language of claims 2 and 8 which provides that the judging section judges that the oscillation in the final gear is within the acceptable range when at least one of the oscillation frequency and the oscillation amplitude is determined by the equation analyzing section to fall within the acceptable range, is acceptable and supported by the subject application. Thus, the language in question is not incorrect and further amendment is not required of these claims.

Claims 4-5

As indicated above, claims 4-5 were amended so they were in better form for a program claim as had been suggested by the Examiner.

As to the additional objection directed specifically to the language of claim 5, this objection is addressed hereinabove in connection with the remarks concerning the objections to claims 2 and 8. Thus, and as explained above, the language in question is not incorrect and further amendment is not required of claim 5.

Accordingly, claims 2, 4-6 and 8, are considered to be in allowable form.

CLAIMS 10-21

As indicated above, claims 10-12 and 16-21 were added to more distinctly claim embodiments of the present invention and claims 13-15 were added to replace originally filed claims 4-6. These added claims are clearly supported by the originally filed disclosure, including the originally filed claims. It also is respectfully submitted that these added claims are patentable over the cited prior art on which the above-described rejection(s) are based.

SEPCIFICATION OBJECTIONS

The Examiner objected to the specification of the subject application and requested correction thereof. The following addresses the specific objections of the Examiner.

ABSTRACT

The ABSTRACT was objected to because of language therein relating to the frequency and amplitude.

As indicated above in regards to the specific objections raised in regards to claims 2, 5 and 8, the language used in the Abstract is consistent with the disclosure and discussion in the subject application. Thus, amendment of the referenced language is not required.

Notwithstanding this Applicants have amended the Abstract to advance prosecution and avoid possible objections due to its length. Thus, the as-amended ABSTRACT is considered acceptable.

OTHER

The Examiner also objected to the specification for the reasons provided on pages 3-4 of the above-referenced Office Action.

As to page 7, the phrase or expression "a gear with a small module" was objected to as being not understood as to what this is intended to mean or describe. This expression is used to describe a gear having small-sized teeth. This expression is used among those skilled in the art to which the present invention pertains in this fashion. In this regard, Applicants would note that this is the case at least with regards to the Japanese language.

As to the objections directed to pages 31, 32, 34, 41 and 42, these objections were addressed hereinabove in connection with the discussion regarding the objections raised specifically as to claims 2, 5 and 8. Thus, and as explained above, the language in question in the specification is not incorrect and further amendment is not required.

During preparation of the within response, Applicant discovered a typo in which a stated number was inconsistent with that shown in the graphical view provided in the referenced drawing figure, Fig. 5(a). Accordingly, the paragraph on page 33 identified above was amended so that the number was consistent with that shown in Fig. 5(a).

It is respectfully submitted that for the foregoing reasons, the specification satisfies applicable Patent laws and rules and, therefore is considered acceptable.

It is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

Because the total number of claims and/or the total number of independent claims post

amendment now exceed the highest number previously paid for, authorization is provided herewith to charge the below-identified deposit account for the required additional fees. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. **04-1105.**

Respectfully submitted,
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